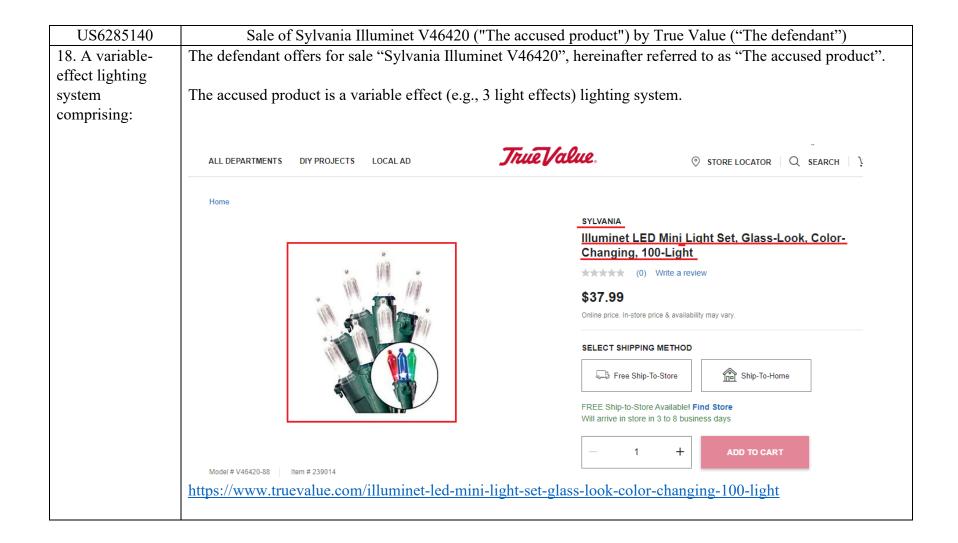
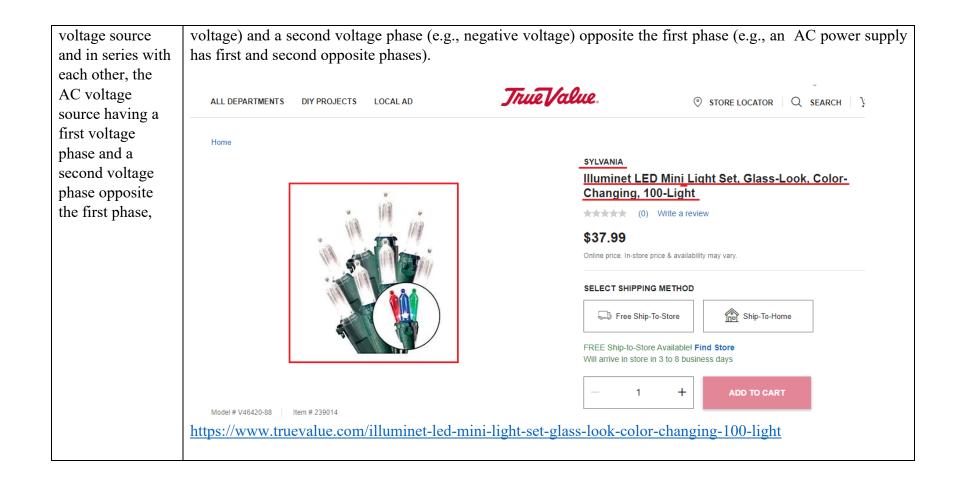
1:19-CV-1165

## Exhibit 4



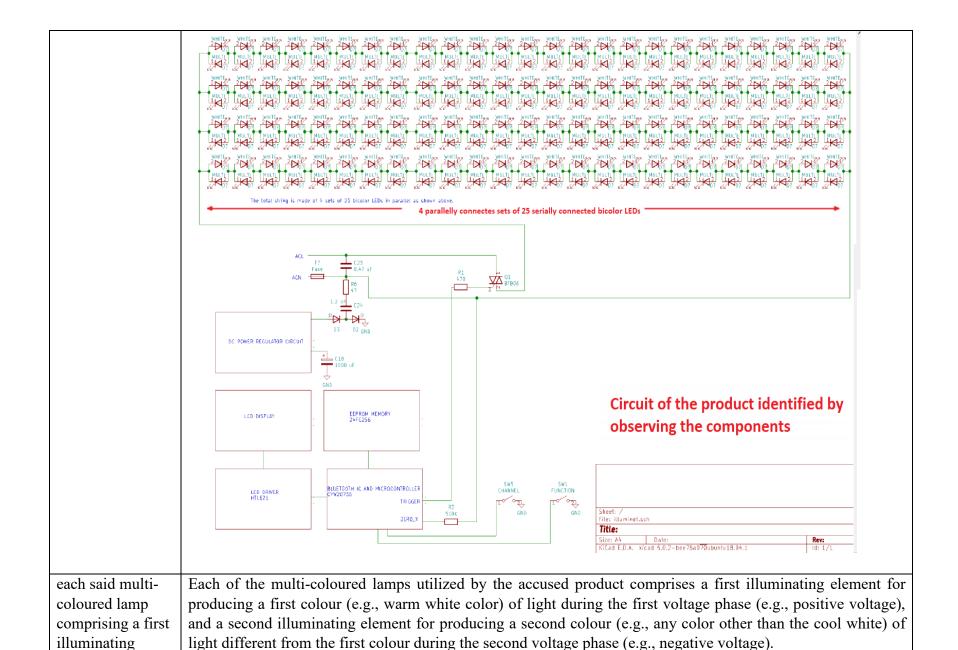


a lamp assembly comprising a plurality of multicoloured lamps in series with an AC The accused product comprises a lamp assembly comprising a plurality of multi-coloured lamps (e.g., there are 4 sets of 25 warm white LEDs paired with colored LEDs) in series with an AC voltage source (e.g., the 25 pairs of LEDs are in series to a  $120V \sim 60$ Hz, 0.8A AC power source) and in series with each other (e.g. the 25 sets of LED pairs are all in series with each other), the AC voltage source having a first voltage phase (e.g., positive



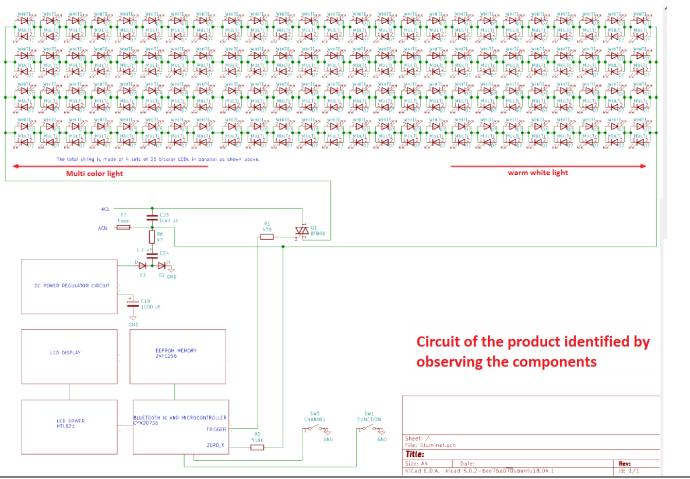


As disclosed below accused product has 4 parallelly connected sets of 25 serially connected LEDs.



element for producing a first colour of light during the first voltage phase, and a second illuminating element for producing a second colour of light different from the first colour during the second voltage phase; and

The bicolor LEDs have two back to back connected LEDs such that when positive voltage is applied to the terminals of LED then one LED illuminates and when negative voltage is applied to the terminals of LED then another LED illuminates.



a programmable lamp controller

The accused product comprises a programmable lamp controller (e.g., an 8-pin controller chip) coupled to the lamp assembly for setting a conduction angle (e.g., conduction angle set by the controller) of each said

coupled to the lamp assembly for setting a conduction angle of each said illuminating element according to at least one predetermined pattern, each said predetermined pattern being stored in a memory of the controller.

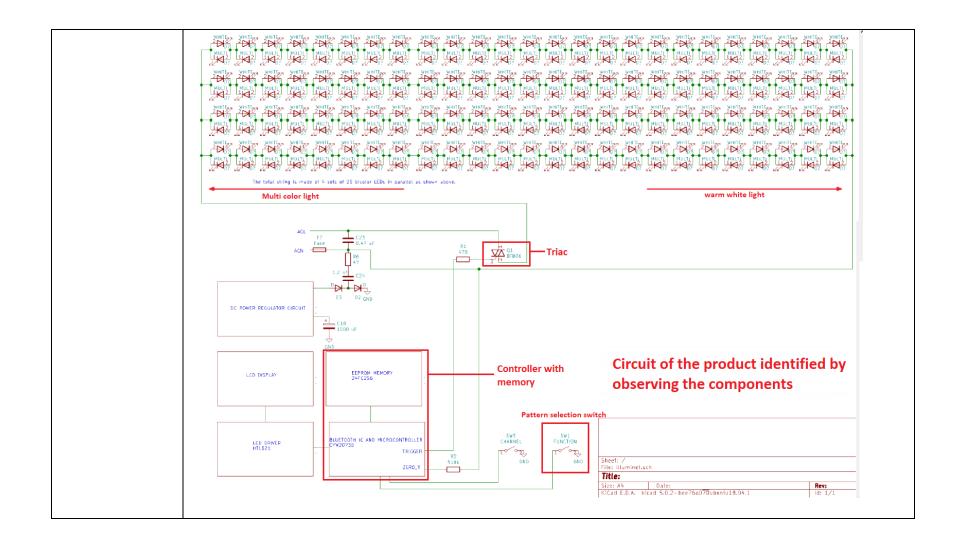
illuminating element according to at least one predetermined pattern (e.g., one of the 3 patterns selected by the user), each said predetermined pattern being stored in a memory of the controller (e.g. the accused product must have a memory where the preprogramed lighting patterns are stored).

As disclosed below controller of the accused product is attached with a triac. The triac conducts current in either direction when triggered and hence allows the controller to vary the conduction angle.





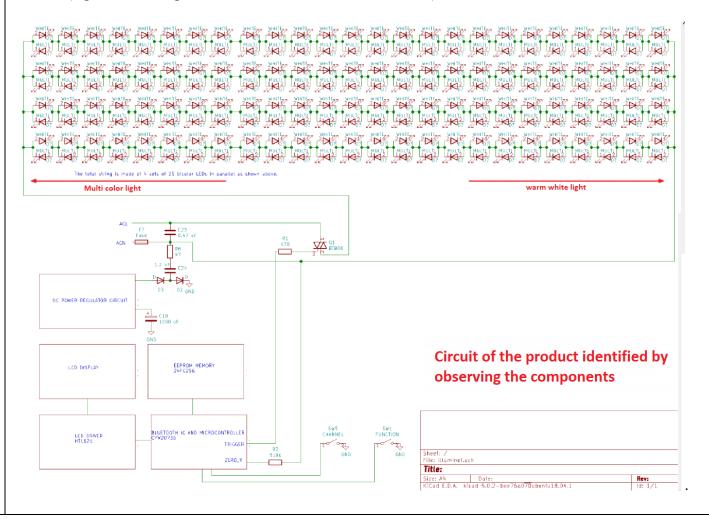






19. The lighting system according to claim 18, wherein each said multi-coloured lamp comprises a pair of lightemitting diodes connected backto-back, a first light-emitting diode of the lightemitting diode comprising the first illuminating element and a second lightemitting diode of the light-emitting diode pair comprising the second illuminating element.

The accused product comprises multi-coloured lamps (e.g., warm white and various other colored LEDs) comprising a pair of light-emitting diodes connected back-to-back, a first light-emitting diode of the light-emitting diode comprising the first illuminating element (e.g., illuminating element used for the warm white color) and a second light-emitting diode of the light-emitting diode pair comprising the second illuminating element (e.g., illuminating element used for the multi-color effect).



20. The lighting system according to claim 18, wherein the at least one pattern is selectable according to a user-operable input to the controller.

The accused product comprises various patterns which are selectable according to a user-operable input (e.g., switch operation by a user) to the controller (e.g., an 8-pin controller chip).



